

# Marking Scheme

## SUMMATIVE ASSESSMENT - II (2015-16)

### Science (Class-IX)

**General Instructions:**

1. The Marking Scheme provides general guidelines to reduce subjectivity and maintain uniformity. The answers given in the marking scheme are the best suggested answers.
2. Marking be done as per the instructions provided in the marking scheme. (It should not be done according to one's own interpretation or any other consideration).
3. Alternative methods be accepted. Proportional marks be awarded.
4. If a question is attempted twice and the candidate has not crossed any answer, only first attempt be evaluated and 'EXTRA' be written with the second attempt.
5. In case where no answers are given or answers are found wrong in this Marking Scheme, correct answers may be found and used for valuation purpose.

**भाग-अ / SECTION-A**

1	Avogadro's constant = $6.022 \times 10^{23}$	1
2	Element X is hydrogen	1
3	They are exposed to the virus through water.	1
4	Thrust is perpendicular force. Unit newton. Pressure is thrust per unit area. Unit pascal.	2
5	Time after which an echo is heard is given by $t = \frac{\text{distance}}{\text{speed of sound wave}}$ Since the speed of sound in air decreases with the decrease in temperature, so the time after which the echo will be heard increases. Hence the echo will be heard later than the echo heard when temperature was 22°C	2
6	(a) O <sub>2</sub> = one molecule of oxygen 2O = 2 atoms of oxygen (b) (i) Monoatomic - He, Ne	3

	<ul style="list-style-type: none"> <li>(ii) Diatomic - O<sub>2</sub>, CO, HCl</li> <li>(iii) Triatomic - O<sub>3</sub>, H<sub>2</sub>S, C O<sub>2</sub></li> <li>(iv) Tetraatomic - NH<sub>3</sub>, PCl<sub>3</sub> (any one example each)</li> </ul>							
7	Hydrogen has three atomic species, namely protium (H), deuterium (D) and tritium(T). The atomic number of all three is 1 where as the mass number of protium deuterium and tritium is 1, 2 and 3 respectively.	3						
8	<p>Cation :</p> <ul style="list-style-type: none"> <li>(1) Cations are positively charged</li> <li>(2) It is smaller in size</li> <li>(3) It combines with negatively charged particles</li> </ul> <p>Anion :</p> <ul style="list-style-type: none"> <li>(1) Anions are negatively charged</li> <li>(2) They are bigger in size</li> <li>(3) It combines with positively charged particles</li> </ul>	3						
9	<ul style="list-style-type: none"> <li>(a) Pteridophyta</li> <li>(b) Proto Chordata</li> <li>(c) Angiosperm</li> </ul>	3						
10	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">(a) Mosquito bite</td> <td style="width: 50%;">(b) Brain</td> </tr> <tr> <td>(c) Sexual organs</td> <td>(d) Lymph nodes all over the body</td> </tr> <tr> <td>(e) From air via nose</td> <td>(f) Lungs</td> </tr> </table>	(a) Mosquito bite	(b) Brain	(c) Sexual organs	(d) Lymph nodes all over the body	(e) From air via nose	(f) Lungs	3
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11	Robert Whittaker Five kingdoms - Monera, Protista, Fungi, Plantae, Animalia.	3						
12	Statement The density of cork is less than that of water. It means its weight is lesser than the buoyant force experienced by it under water. So when it is released, it comes to the surface of water	3						
13	<ul style="list-style-type: none"> <li>(a) Infrasonic waves</li> <li>(b) Rhinos, whales, elephants can detect and produce these waves. (any two)</li> <li>(c) 20 Hz to 25 KHz.</li> </ul>	3						
14	Definition of Kinetic Energy	3						

	$\text{K.E.} = \frac{1}{2} mv^2$ $\text{K.E} = \frac{1}{2} \times 12 \times (5)^2$ $\text{K.E} = 150 \text{ J}$	
15	<p>Definition + Unit  Factors are  (1) force acting  (2) displacement produced  Positive work - When a bat hits a ball  Negative work - Force of friction.</p>	3
16	<p>(a) The technique of obtaining pictures of internal organs of the body by using echoes of ultrasound pulses is called <u>ultrasonography</u>. It also works on the principle of reflection of sound.  (b) Ultrasonography is used for the examination of foetus during pregnancy to detect any growth abnormalities.  <u>Value</u> :- Doctor is helping gender biased- ness which is very good</p>	3
17	<p>Fig 4.2 with explanation Page 48, NCERT class IX  Three conclusions -  (i) There is a positively charged centre in an atom called nucleus.  (ii) Electrons revolve around the nucleus in well defined orbits.  (iii) The size of the nucleus is very small as compared to the size of the atom.</p>	5
18	<p>(a) Platyhelminthes – tapeworm  (b) Echinodermata – star fish  (c) Mollusca – snail  (d) Porifera – sponge  (e) Arthropoda – cockroach</p>	5
19	<p>(a) Elephantiasis, Tuberculosis  (b) Chronic disease  (c) Chronic diseases are more harmful because they last for a long time sometimes even lifetime, likely to have prolonged general poor health which may have very drastic long-term effects.</p>	5
20	<p>(a) <math>m = vd = \frac{4}{3} \times \frac{22}{7} \times (0.21)^3 \times 7.8 = 0.3 \text{ g}</math></p>	5

	<p>(b) <math>P = \frac{F}{A} = \frac{mg}{A}</math></p> $m = \frac{P \times A}{g} = \frac{1000 \times 15 \times 10^{-4}}{10} = 0.15 \text{ kg.}$ $\text{New } P = \frac{0.15 \times 10}{10 \times 10^{-4}} = 1500 \text{ Pa}$	
21	<p>(a) 0.72 kWh  (b) 1.6 kWh  (c) <math>E_3 = 0.3 \times 24 = 7.2 \text{ kWh}</math>  <math>E = 0.72 + 1.6 + 7.2 = 9.52 \text{ kWh}</math>  Cost = E × rate  = <math>9.52 \times 2 \times 31 = ₹ 590.24</math></p>	5
<p><b>भाग-ब ( मुक्तपाठ )/SECTION - B (OTBA)</b>  (* Please ensure that open text of the given theme is supplied with this question paper.)  <b>हमारे देश में अनावृष्टि (सूखा) प्रबंधन/ Handling Drought in our Country</b></p>		
22	<p>a) Without forests wind blows fast, evaporating water from soil, causing soil erosion.  b) If the soil is dry there will be no water available for evaporation. Thus sunlight will warm the surface thereby making conditions hotter and drier leading to drought.</p>	2
23	<p>a) E L nino effect- As forecaster calculates 60 percent chance of drought (1/2)  b) It is due to thirsting for rain. (1/2)  c) IMD said that cumulative rainfall across the country during current monsoon was 4.3 % below the long period average and the worst impact of a sub-normal monsoon felt central India leading drought probabilities. (2)</p>	3
24	<p>Cloud seeding  Post-harvest management  Afforestation with bio-diesel species  Public distribution system  Crop insurance</p>	5
<p><b>भाग- स /Section - C</b></p>		

25	(c)		1
26	(b)	Same irrespective of the contact surface.	1
27	(c)	It masks the effect of any deviation in the reading due to human error.	1
28	(b)		1
29	(a)	White precipitate is formed	1
30	(b)	1.12 g	1
31	(b)		1
32	(c)		1
33	(a)	larva stage	1
34		<p>Mass of a solid cube of metal = 40 gm  Volume of water displaced by solid metal = 25 mL</p> $\text{Density of solid cube} = \frac{\text{mass}}{\text{volume}}$ $= \frac{40}{25} = 1.6 \text{ gm/mL}$	2
35		<p>Wt. of ball in air = 2N  Wt. of ball on immersing = 1.5 N  Loss in wt. = 2 – 1.5 = 0.5 N</p>	2

	According to Archimede's Principle	
36	(a) Jointed appendages, chitinous skeleton and three pair of legs (any two) (b) Spiracles	2
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